SNC2D0 **Colorado Phet Curved Mirror Simulation Activity**

Name:_____

Learning Goals: We are learning to understand the nature of images formed by curved mirrors and the ray diagrams that be used to locate images.

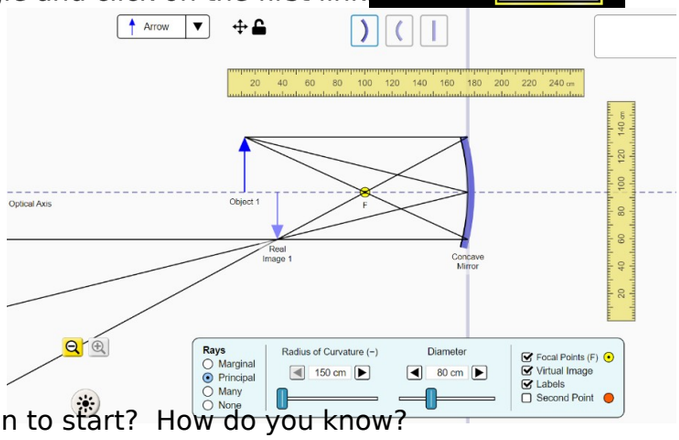
⇒ **Open the simulation by clicking on the link:** Colorado Phet Geometric Optics Simulation

OR type " Colorado Phet Geometric Optics" in Google and click on the first link

⇒ **Start the simulation and select : Mirror**

⇒ **Set up the simulation:**

- Choose the ARROW
- Turn on PRINCIPAL Rays
- Set the Radius of Curvature to 150 cm
- Pull out the rulers
- Turn on Focus Points, Virtual Image, Labels



Describing Images:

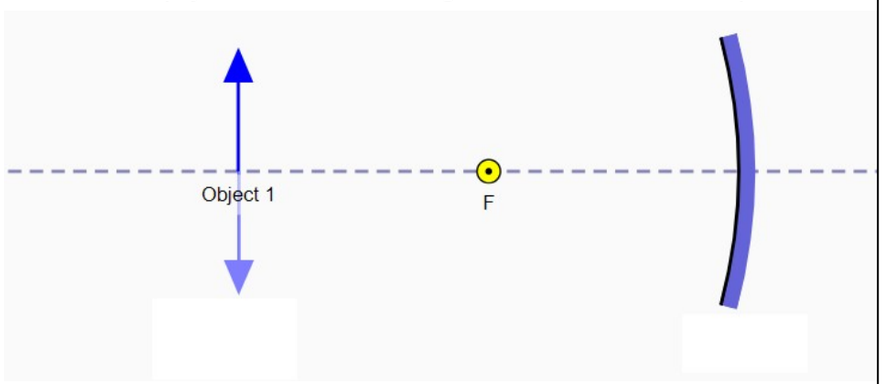
1) What type of mirror is shown in the simulation to start? How do you know?

2) Move the object closer to the focal point but don't go past it. Discuss the general image characteristics (SALT-**Size Attitude Location Type**) and how they change as you move the object closer.

3) Move the object past the focus and closer to the mirror. Discuss the general image characteristics (SALT-**Size Attitude Location Type**) and how they change as you move the object closer

Drawing and Measuring: Turn on the PRINCIPAL RAYS to help you select TWO rays to draw for each case below!

4.a) Move the object back until you see the image directly below the object. Draw TWO rays (with a ruler) that help you locate the image. Measure and complete the c



Mirror- Object distance: _____

Mirror- Focus (F) distance:_____

Object Height: _____

Image Height:_____

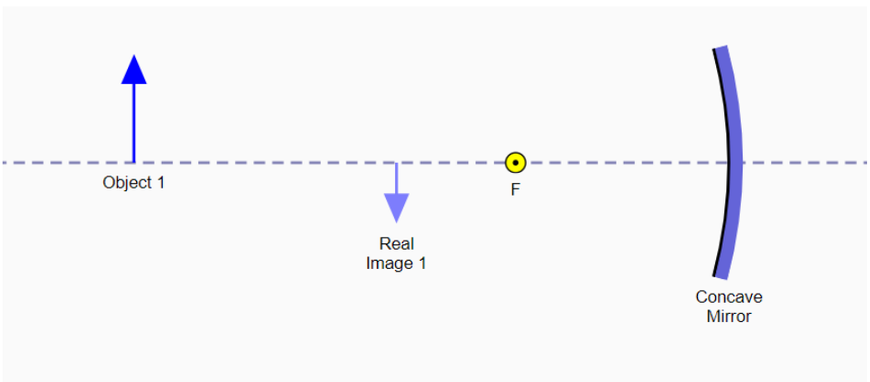
Image characteristics;

S:_____

A:_____

Where is the object located in this case? _____

b) Move the object to the approximate location as shown. Draw TWO rays (with a ruler) that help you locate the image. Measure and complete the chart:



Mirror- Object distance: _____

Mirror- Focus (F) distance:_____

Object Height: _____

Image Height:_____

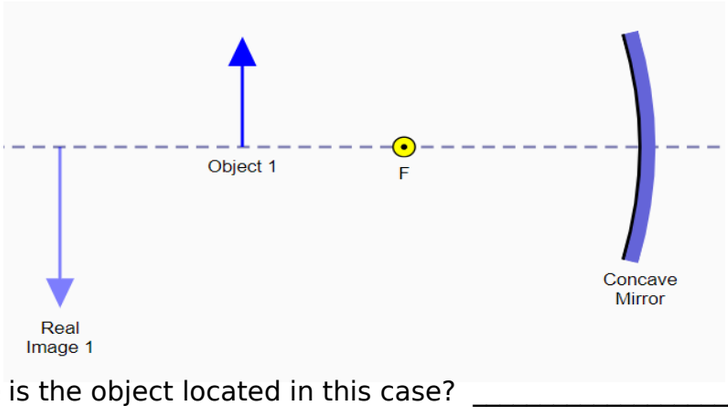
Image characteristics;

S:_____

A:_____

Where is the object located in this case? _____

c) Move the object to the approximate location as shown. Draw TWO rays (with a ruler) that help you locate the image. Measure and complete the chart:



Mirror- Object distance: _____

Mirror- Focus (F) distance:_____

Object Height: _____

Image Height:_____

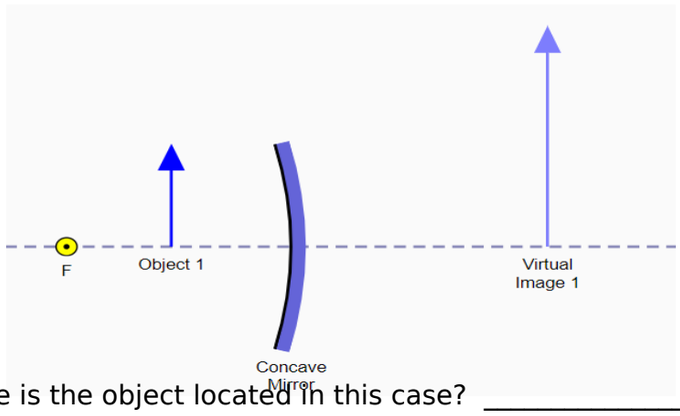
Image characteristics;

S:_____

A:_____

Where is the object located in this case? _____

d) Move the object to the approximate location as shown. Dra
help you locate the image. Measure and complete the chart:



Mirror- Object distance: _____

Mirror- Focus (F) distance:_____

Object Height: _____

Image Height:_____

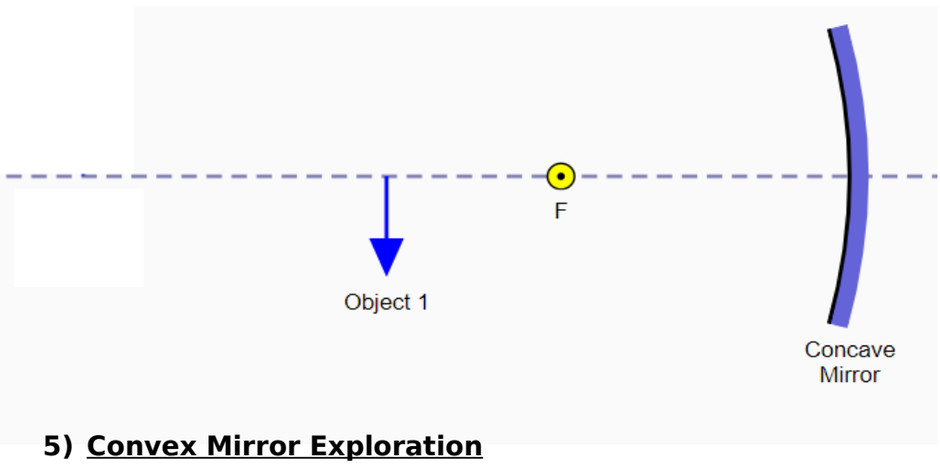
Image characteristics;

S:_____

A:_____

Where is the object located in this case? _____

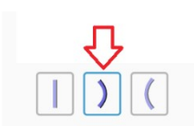
4) Drag the arrow until it appears as shown and is located 120 cm from the mirror (use the ruler to measure!). Locate the image using 2 rays and confirm your diagram with the simulation.



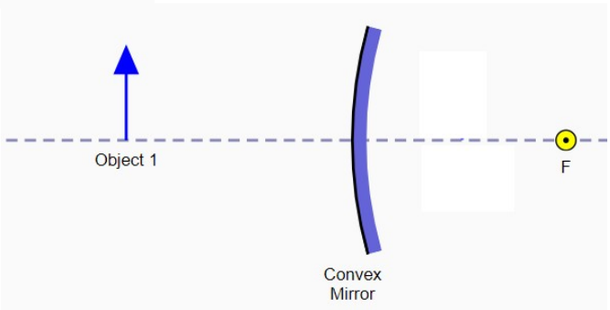
What type of image is this? (real or virtual). How do you know?

Is this image UPRIGHT or INVERTED? How do you know?

5) <u>Convex Mirror Exploration</u>



Switch to the Convex Mirror as shown. Place the object 80.0 cm from the mirror. Draw TWO rays to locate the image and complete the chart.



Mirror- Object distance: _____

Mirror- Focus (F) distance:_____

Object Height: _____

Image Height:_____

Image characteristics;

S:_____

A:_____